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BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			REESE, DAVID C	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com



### **DETAILED ACTION**

THIS FINAL ACTION IS RESPONSIVE TO THE AMENDMENT FILED 5/21/2007.

- Claims 2, 9, 12, 16, and 26 were canceled.
- Claims 1, 8, 10, 13, 17, 22, 27-28 were amended.
- Claims 1, 3-8, 10-11, 13-15, 17-25, and 27-28 are pending.

#### ***Drawings***

[1] The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “84” has been used to designate both the reinforcing member and the nut in Fig. 5. The examiner asks the applicant’s cooperation in maintaining that all of the reference numbers used in the drawings are consistent with the disclosure. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Objections***

[2] Claim(s) 5, 8, 10, 13, and 27 were previously objected to because of informalities. Applicant has to some degree addressed these issues in the amendment filed on 5/21/2007. In claim 5, however, the examiner believes that the objection was regarding the use of the term, “a second engaging portion” as in preceding claims; “a first engaging portion” was not claimed. A

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simple change to the dependency of claim 5 may resolve said issue. Accordingly, the objection(s) to the claim(s) 8, 10, 13, and 27; but not 5, have been withdrawn.

However, as amended:

[3] Claim 1 is objected to because of the following informalities: it is stated in the instant claim that “the reinforcing member has a flat board shape and a convex portion for receiving the convex portion of the case with a recess for receiving a nut” It is apparent to the examiner, however, that the structure of the portion of the reinforcing member that receives the convex portion of the case is actually that of a concave structure. As it is the recess or concavity of the reinforcing member that receives the convex portion of the case.

Further, it is apparent to the examiner that the reinforcing member merely receives the convex portion of the case; not both the convex portion of the case as well as the claimed nut. It is apparent that only the case has a recess that receives the nut as shown in Fig. 5. If the statement “convex portion of the case with a recess for receiving a nut” was directed to the recess of the case, such language is not necessary since it has already been claimed supra in said claim (see line 10).

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

[4] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

[5] Claims 1 and 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Heyder (U.S. Patent No. 5,483,756).

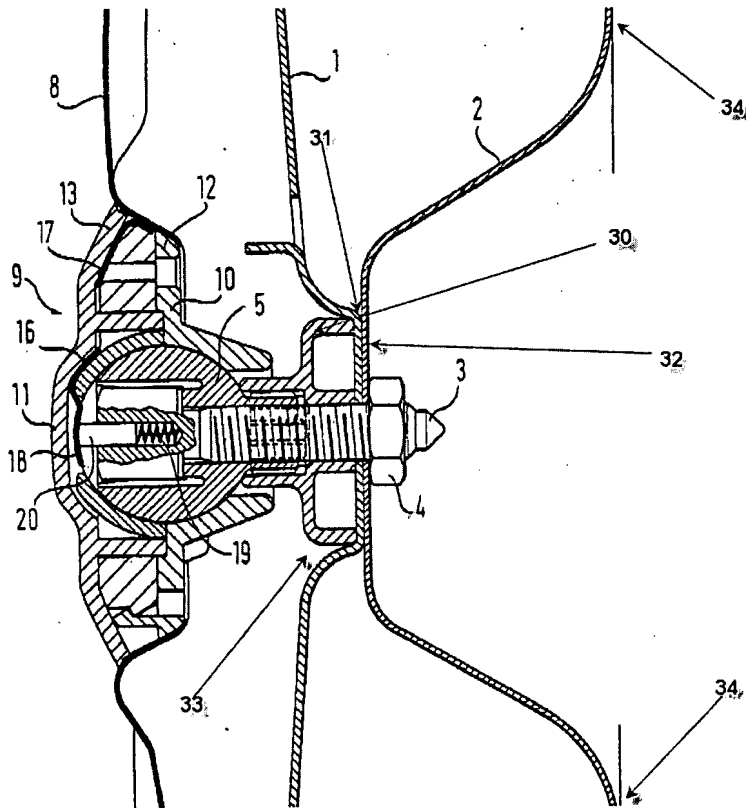
Heyder discloses a hinge apparatus of a clothes drier drum comprising a front hinge portion (column 1, lines 66, 67), and a rear hinge portion (see figure 2 and figure below) installed between the rear of the case (1) and a rear of the drum (8) such that the rear of the drum swings in vertical and horizontal directions.

Heyder further shows the rear hinge portion to comprise a housing (10, 11) fixed at the center of the drum, a ball bearing (5) in the housing, and a shaft (3). The shaft (3) extends entirely through the ball bearing (see figure 2); and

Wherein the case (1) has a convex portion (31) with a recess (33) for receiving a nut (30) and a reinforcing member (2) has a flat board shape (34) and a convex portion (32) [for receiving]\* the convex portion (31) of the [case (1) with a recess (33) for receiving a nut]\*\* (30) for reinforcing stiffness of the case (1) when the case (1) is engaged therewith. The reinforcing member (2) is mounted at the outer surface of the case (1).

\*Note: the examiner has interpreted the term, "receiving" as just that; 32 is receiving 31.

\*\*See claim objections



Re: Claim 3, Heyder shows the housing includes first and second housings (11 and 10, respectively) fixed at the rear of the case (1). A spherical groove (around 5) is formed when the first and second housing are assembled.

Re: Claim 4, Heyder discloses the first housing (11) includes a first engaging portion (upper and lower portions of 11, near 13, in figure 2) with a bolt hole (shown in figure 2 between 12 and 13) fixed at the rear surface of the drum (8) and a bolt engaging hole bolt engaged with the second housing (at 12). The holes are formed in a circumferential direction. The first hinge portion (11) is integrally formed at the center of the first engaging portion and has a hemispherical groove where the ball (5) is inserted.

Re: Claim 5, Heyder discloses the second housing (10) comprises a second engaging portion (at 12) having a plurality of bolt holes which is bolt-engaged to the first engaging portion. A second hinge portion has a second hemispherical groove (receiving 5) in which the ball bearing is inserted and a penetrating hole through which the shaft passes.

Re: Claims 6 and 7, Heyder discloses one end of the shaft (3) fixed at the ball bearing (see figure 2), and the other end of the shaft has a spiral formed portion (threads) so as to be bolt engaged with the case (1) while providing an empty gap between the second housing and the case. A base nut (portion around shaft 3, between 4 and 5, in figure 2) is screw engaged with the shaft at an inner surface of the case (1).

***Claim Rejections - 35 USC § 103***

[6] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[7] Claims 8, 10, 13-15, 17, 19-25, 27, and 28, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyder in view of Wesson (U.S. Patent No. 763,821).

With respect to claim 8, Heyder discloses a hinge apparatus of a clothes drier drum having a case, comprising a front hinge portion (column 1, lines 66, 67), and a rear hinge portion (see figure 2) installed between the rear of the case (1) and a rear of the drum (8) such that the rear of the drum swings in vertical and horizontal directions. Heyder further shows the rear hinge portion to comprise a housing (10, 11) fixed at the center of the drum, a ball bearing (5) in

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the housing, and a shaft (3). Heyder also discloses one end of the shaft (3) fixed at the ball bearing (see figure 3), and the other end of the shaft has a spiral formed portion (threads) so as to be bolt engaged with the case (1) while providing an empty gap between the second housing and the case. A base nut (30) is screw engaged with the shaft at an inner surface of the case (1). The base nut (30) is flat (against the recess of the case, as well as having other flat characteristics) and disc shaped and installed at a nut-installed portion at a convex portion (31) of the case (1) with a recess (33) for receiving the base nut (30). Heyder does not show a plurality of protrusions around the outer circumference of the base nut to engage a stopping pin through an insertion groove formed at the convex portion.

Wesson teaches a nut lock comprising a base nut (14) threadably engaged on a shaft (10). The base nut has a plurality of engaging protrusions (sides of 15) spaced from one another with a certain interval therebetween around the outer circumference for engagement with a stopping pin (16) through an insertion groove (17) to restrict rotation of the base nut member to a limited extent. This arrangement prevent the nut from rotating backwards on the bolt and loosening the connection. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Heyder to include the nut lock arrangement of Wesson to prevent the nut from rotating backwards and loosening the connection. As modified, the pin 16 of Wesson would be fitted into the shaft 3 of Heyder, the insertion groove passing through the reinforcing member 2 and case 1 and engage the nut (14) of Wesson. The nut (14) of Wesson replaces the base nut shown by Heyder

Re: Claim 10, Heyder discloses a reinforcing member (2) mounted at an outer surface of the case (1). As modified by Wesson, the stopping pin (16) is inserted in an insertion groove



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(13) formed in the case and is protruded to the nut-installed portion (area between 4 and 5) such that the stopping pin stops a stopping protrusion (sides of 15). In Wesson, it is shown that a stopping pin formed at one member (10) may pass through the groove (13) of another, intermediate member (12) to engage a protrusion (on sides of 15) of a nut (14). As applied to Heyder, the pin 16 would be formed in the shaft 3, pass through the reinforcing member (2) and a groove in the case (1) to engage protrusions of base nut. It is noted that because the pin is present at a location where the reinforcing member is, it is considered to be formed at the reinforcing member.

Re: Claim 13, Heyder discloses a hinge apparatus comprising a housing (10, 11), a ball bearing (5), a shaft (3), and a shaft fixing unit (2 and portion around shaft 3, between 4 and 5, in figure 3). The shaft fixing unit comprises a base nut member (portion around shaft 3, between 4 and 5, in figure 3) screw engaged with the shaft installed an inner surface of the case (1) and a reinforcing member (2) mounted at an outer surface of the case (1). Heyder does not show a plurality of protrusions around the outer circumference of the base nut to engage a stopping pin through an insertion groove formed at a convex portion of the case.

Wesson teaches a nut lock comprising a base nut (14) threadably engaged on a shaft (10). The base nut has a plurality of engaging protrusions (sides of 15) spaced from one another with a certain interval therebetween around the outer circumference for engagement with a stopping pin (16) to restrict rotation of the base nut member to a limited extent. This arrangement prevents the nut from rotating backwards on the bolt and loosening the connection. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Heyder to include the nut lock arrangement of Wesson to prevent the nut from rotating backwards and

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loosening the connection. As modified, the pin 16 of Wesson would be fitted into the shaft 3 of Heyder, the insertion groove passing through the reinforcing member 2 and case 1 and engage the nut (14) of Wesson. The nut (14) of Wesson replaces the base nut shown by Heyder

Re: Claims 14 and 15, the combination of Heyder and Wesson shows the base nut member to have a disc shape and is installed at a nut-installed portion formed at a center of the case. The stopping pin (16, of Wesson) is inserted in an insertion groove formed in the case and is protruded to the nut-installed portion (area between 4 and 5) such that the stopping pin stops an engaging protrusion (sides of 15). In Wesson, it is shown that a stopping pin formed at one member (10) may pass through the groove (13) of another, intermediate member (12) to engage a protrusion (on sides of 15) of a nut (14). As applied to Heyder, the pin 16 would be formed in the shaft 3, pass through the reinforcing member (2) and a groove in the case (1) to engage protrusions of base nut.

Re: Claim 17, Heyder discloses a housing (10, 11), a ball bearing (5), a shaft (3), and a shaft fixing unit (2 and portion around shaft 3, between 4 and 5, in figure 3). The shaft fixing unit comprises a base nut member (portion around shaft 3, between 4 and 5, in figure 3) screw engaged with the shaft installed an inner surface of a case (1). Heyder does not show a plurality of protrusions around the outer circumference of the base nut to engage a stopping pin through an insertion groove formed at a convex portion of the case.

Wesson teaches a nut lock comprising a base nut (14) threadably engaged on a shaft (10). The base nut has a plurality of engaging protrusions (sides of 15) spaced from one another with a certain interval therebetween around the outer circumference for engagement with a stopping pin (16) to restrict rotation of the base nut member to a limited extent. This arrangement prevents

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the nut from rotating backwards on the bolt and loosening the connection. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Heyder to include the nut lock arrangement of Wesson to prevent the nut from rotating backwards and loosening the connection. As modified, the pin 16 of Wesson would be fitted into the shaft 3 of Heyder, the insertion groove passing through the reinforcing member 2 and case 1 and engage the nut (14) of Wesson. The nut (14) of Wesson replaces the base nut shown by Heyder.

Re: Claim 18, Heyder discloses a reinforcing member (2) at the outer surface of the case (1). The combination of Wesson and Heyder shows a stopping pin (16 of Wesson) formed at the reinforcing member (2 of Heyder). As combined, the pin 16 would be formed in the shaft 3, pass through the reinforcing member (2) and a groove in the case (1) to engage protrusions of base nut. It is noted that because the pin is present at a location where the reinforcing member is, it is considered to be formed at the reinforcing member.

Re: Claims 19 and 20, the combination of Heyder and Wesson shows the base nut member to have a disc shape and is installed at a nut-installed portion formed at a center of the case. The stopping pin (16 of Wesson) is inserted in an insertion groove (13) formed in the case and is protruded to the nut-installed portion (area between 4 and 5) such that the stopping pin stops an engaging protrusion (sides of 15). In Wesson, it is shown that a stopping pin formed at one member (10) may pass through the groove (13) of another, intermediate member (12) to engage a protrusion (on sides of 15) of a nut (14). As applied to Heyder, the pin 16 would be formed in the shaft 3, pass through the reinforcing member (2) and a groove in the case (1) to engage protrusions of base nut.

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Re: Claim 22, Heyder discloses a method of assembling a hinge comprising the steps of providing a first housing (11), second housing (10) and a shaft (3). Heyder further discloses fixing the first housing (11) to a rear center position of the drum (8) and inserting a ball bearing (5) into a first hinge portion of the first housing (portion of 11 receiving the ball 5) and coupling the second housing (10) to the first housing (11). Heyder further discloses coupling a shaft fixing member (2, and portion around shaft 3, between 4 and 5) to a spiral formed (threaded) section of the shaft and inserting the shaft into a case (1) to fix the shaft into the case. A nut (4) is coupled to an end of the shaft (3). Heyder does not show a stopping pin at the reinforcing member to stop the shaft fixing member.

Wesson teaches a nut lock comprising a shaft fixing (14) threadably engaged on a shaft (10). The shaft fixing unit has a plurality of engaging protrusions (sides of 15) spaced from one another with a certain interval therebetween around the outer circumference for engagement with a stopping pin (16) to restrict rotation of the base nut member to a limited extent. This arrangement prevents the shaft fixing unit from rotating backwards on the bolt and loosening the connection. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Heyder to include the nut lock arrangement of Wesson to prevent the shaft fixing from rotating backwards and loosening the connection. As modified, the pin 16 of Wesson would be fitted into the shaft 3 of Heyder, pass through the reinforcing member 2 and case 1 and engage the nut (14) of Wesson. The nut (14) of Wesson replaces the base nut shown by Heyder. The stopping pin (16) is at the reinforcing member, and in an insertion groove at the case and engages the protrusions (sides of 15 in Wesson). Rotation of the shaft is prevented by the shaft fixing member.

Re: Claims 23 and 24, Heyder discloses that the steps of providing the first and second housings include a semi-sphere groove being formed in the first and second hinge portions, respectively (portion of 11 and 10 containing the ball 5).

Re: Claim 25, Heyder discloses a reinforcing member (2) coupled to an end portion of the shaft (3) from the outer side of the case.

Re: claims 27 and 28, the combination of Heyder and Wesson shows the stopping pin (16 of Wesson) is curvedly extending from an outer circumferential surface of the reinforcing member. Wesson shows a curved stopping pin. The shaft fixing member is contacted with an inner surface of the case (1) and the reinforcing member (2) is contacted with an outer surface of the case (see figure 2).

Re: Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyder in view of Wesson as applied to claims 8 and 18 above, and further in view of Crowley (U.S. Patent No. 5,963,432). In Heyder, it appears that the reinforcing member is fixed to the case by nut (4), not a weld or rivet as claimed.

Crowley teaches a fastening arrangement where a threaded rod and nut or a rivet may be used (column 4, lines 25-26), thus establishing equivalence between the two fasteners. It would have been obvious to one having ordinary skill in the art at the time of the invention to use a rivet to secure the reinforcing member to the case of Heyder, as a rivet is an equivalent fastening means.

### ***Response to Arguments***

[8] Applicant's arguments filed 5/21/2007 regarding rejections under 35 U.S.C. 102 have been fully considered but they are not persuasive. Applicant states that Heyder does not disclose

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of a reinforcing member having a flat board shape at upper and lower ends thereof. The examiner disagrees, and directs the applicant to the above figure showing the location of the examiner's interpretation of the upper and lower ends having a flat board shape; as 34 is considered by the examiner as having a flat shape. Continuing, the applicant states that Heyder does not show of the reinforcing portion having a convex shape that receives the convex portion of the case. Outside the issue raised in the claim objections, the examiner maintains that the prior art of Heyder does indeed disclose of a convex portion (32) that receives the convex portion (31) of the case (1). The examiner's interpretation of "received" does not necessary mean that there is a recess.

[9] Applicant's arguments filed 5/21/2007 regarding rejections under 35 U.S.C. 103 have been fully considered but they are not persuasive. The applicant states that the base nut of Heyder does not have a flat disc shape. The examiner disagrees. Using the broadest reasonable interpretation possible, the examiner maintains that the base nut (30) of Heyder does indeed have flat characteristics including that of lying flat within the recess of the case. Continuing, the applicant states that the office action is silent as to exactly how Heyder is to be modified. The examiner disagrees and directs the applicant to the above 103 rejections indeed disclosing how Heyder would be modified in view of the teachings of Wesson (i.e. from above: As applied to Heyder, the pin 16 would be formed in the shaft 3, pass through the reinforcing member (2) and a groove in the case (1) to engage protrusions of base nut).

With regard to the motivation required raised by the applicant, KSR forecloses the argument that a specific teaching, suggestion, or motivation is required to support a finding of

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obviousness. *Ex parte Smith*, --USPQ2d--, slip op. at 20, (Bd. Pat. App. & Interf. June 25, 2007)(citing *KSR*, 82, USPQ2d at 1396).

With regard to applicants statement concerning that one skilled in the art would not be motivated to go to the trouble and expense of significantly modifying Heyder, in response, the examiner would like to point out that just because one skilled in the art may or may not be motivated to go to the trouble, does not mean that such “trouble” would not be obvious to one skilled in the art.

With regard to applicant’s fourth point, it is apparent to the examiner that the applicant has confused the base nut with a hex nut. Heyder does indeed show of a base nut located between the ball bearing and the case.

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***Conclusion***

[10] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

[11] Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Reese whose telephone number is (571) 272-7082. The examiner can normally be reached on 7:30 am-6:00 pm Monday-Thursday.

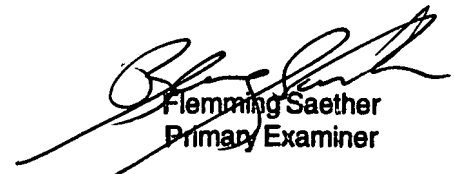
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached at (571) 272-7075. The fax number for the organization where this application or proceeding is assigned is the following: (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DCR



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Art Unit 3677



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